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OPERATOR'S INSTRUCTIONS
for the
ARMALITE AR-50 RIFLE

April 15, 2002

I. INTRODUCTION

Figure 1,
The AR-50 rifle

Description:

The AR-50 is a robust, front locked, manually loaded bolt action single-shot rifle chambered for the .50 caliber Browning Machine Gun cartridge. It is intended for long range target shooting.

The AR-50 is a finely made rifle, a sophisticated machine built for long years of reliable use. It consists of two major elements, the Barreled Action Assembly and the Stock Group. They are joined at a unique machine-rest style V-block interface. Accurate, repeatable bedding is formed by the engagement of the octagonal Receiver and the deep V channel in the aluminum Forestock.

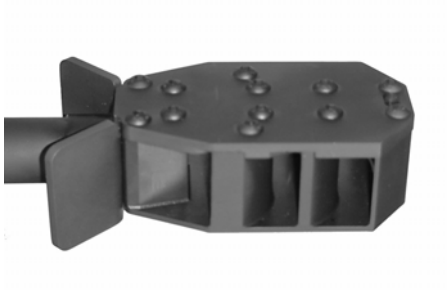


Figure 2
The ArmaLite .50 Caliber Early Muzzle Brake

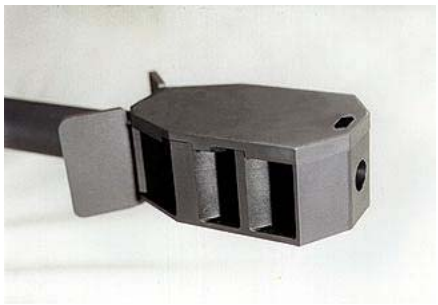


Figure 3
The ArmaLite .50 Caliber Muzzle Break

The AR-50 is equipped with an extremely effective Muzzle Brake. It reduces the punishing recoil of the .50BMG to a relatively mild shove. It is effective enough that even a small-statured shooter can fire the rifle, and most shooters will be able to spend long days at the range without discomfort.

The Muzzle Brake is held in place by both a lock ring and Loc-Tite. Don't remove it unless replacement or repair is necessary. Trying to force the Brake off without softening the Loc-Tite may unscrew the barrel!

II. SAFETY FIRST:

Always wear effective hearing protection. The AR-50 is extremely loud due to the efficiency of the muzzle brake. Wear *double* hearing protection: foam plugs and good quality hearing protection muffs. Assure that spectators and other shooters within 100 yards of the firing point are also wearing hearing protection. *<u>You</u> are responsible for warning them that you are about to fire, and that the shot will be loud.*

Never fire the rifle without the Muzzle Brake in place. The Muzzle Brake is an important safety device. It makes the rifle comfortable to shoot and, more importantly, prevents the rifle from recoiling hard enough to possibly injure the shooter.

Assure that the Muzzle Brake is firmly secured and undamaged. Make sure the Brake is screwed fully and firmly onto the Barrel. Make sure that all of the Brake Screws (early brake) are in place and fully tightened. Never fire the rifle if a Screw is missing. Never shoot the rifle without the Blast Deflector (the heavy wings behind the brake) in place. Normal tolerances may allow the Deflector of the early brake to be slightly loose.

Make sure that your backstop is fully capable of stopping the powerful .50 BMG cartridge.

Avoid muzzle blast. The AR-50's Muzzle Brake works by diverting muzzle gasses towards the rear. It is LOUD. Spectators should not stand within 25 yards of the Rifle, and should be especially careful not to stand in the area 30 to 90 degrees to either side of the Rifle. The best place to be is directly to the rear of the Rifle, shooting it.

Use only clean, high quality ammunition, in good condition. Some.50 caliber ammunition is old surplus, and is unreliable and inaccurate. ArmaLite cannot condone the use of handloaded ammunition in the AR-50. Any such use voids any ArmaLite warranty.

Make sure that no cleaning patch or other obstruction is in the Barrel or Muzzle Brake. It may damage the Rifle or flying debris may injure somebody standing nearby.

Keep your ArmaLite in good hands… Yours! Keep it locked up and secure. Don't become the victim of a theft, or find your Rifle in the hands of anybody unworthy of it. Secure the Bolt separately, or lock the Rifle in a vault.

III. OPERATING INSTRUCTIONS

A. Controls and Indicators.

2 4

5 3 1

Figures 4 and 5
Operating Controls

1. Bolt Handle. Lift the Bolt Handle to unlock the Bolt and pull the Bolt to the rear. Pulling back slowly leaves the cartridge in the receiver, pulling quickly ejects it. The AR-50 is a large rifle, and the bolt will be harder to turn than you're used to.

2. Safety. The Safety is mounted at the rear of the Bolt Group. To engage the Safety, turn the Safety counterclockwise to the 1:30 "safe" position. To place the Safety to "fire," turn the Safety to the horizontal, 3:00 position. (Note: The AR-50 design allows the Striker to shift forward about 1/8 inch if the Safety is engaged and the Trigger is then pulled. The Safety is deliberately made difficult to shift from this forward position to the fire position with normal finger pressure. The Safety is easily and properly returned to the cocked position by raising, then lowering the Bolt Handle.)

3. Trigger. The Trigger is located within the Trigger Guard. It is of conventional, single stage design. Grasp the Grip with the right hand and pull the Trigger straight to the rear. The weight of the striker assembly requires the trigger to be set at a heavier weight than is normal on a lighter rifle. It will not disturb accurate shooting.

4. Buttplate Locking Screw. Loosen the Screw with a ¼ inch Allen wrench to raise or lower the Buttplate to suit the shooters firing position.

5. Cheekpiece Locking Screws. Loosen the screws with a 5/32 inch Allen wrench to raise or lower the Cheekpiece.

B. Maintenance and Safety Checks

1. Make sure that the Rifle is unloaded, and that the Bolt is to the rear.
2. Inspect the bore to make sure that there are no obstructions.
3. Inspect the Muzzle Brake to assure that it is tight, all screws are intact, and the Blast Deflector is in place.
4. Close the Bolt, assuring that the Safety (which is attached directly to the striker) remains at the rear, cocked position.
5. Engage the Safety. If the Safety doesn't engage, the Rifle probably didn't stay cocked. Have it inspected by a competent gunsmith. It will tend to require strong effort to place the Safety to the "safe" position and, more importantly, to take it off safe.
6. Rotate the Safety to the 3:00 "fire" position, and pull the Trigger. The Safety should jump forward to the fired position.
7. Raise the Bolt Handle, making sure that the Safety shifts to its rear position.
Pull the Bolt to the rear. You are now ready to load and fire.

C. Loading and Firing

1. **Verify safety.** Make sure that the Rifle is pointed in a safe direction, towards a known, adequate backstop. Make sure that everybody within 100 yards knows that the rifle is about to be fired and protects their hearing.
2. If it's not already open, raise the Bolt Handle and pull the Bolt to the rear.
3. Place a Cartridge into the Action through the Ejection Port.
4. Close the bolt to chamber and lock the Cartridge. Push the Bolt forward forcefully so that the Extractor snaps over the case rim. You will feel fairly strong resistance as the Ejector is pressed back into the face of the bolt. Turn the Bolt handle down completely.
5. Assume a good position behind the rifle. Make sure that the Buttplate is locked at a level that allows it to rest in complete contact with the shoulder. Make sure that the cheek is well forward on the Cheek Rest.
6. Aim at the target,
7. Pull the Trigger straight to the rear. You will know when the rifle fires.

Note: the AR-50 is equipped with a very secure manual Safety. ArmaLite recommends loading the rifle immediately before firing a shot instead of leaving the rifle loaded and on safe. As a practical target shooting measure, the Rifle should be considered safe only when it is unloaded and the action is open.

Emergency Procedures. If the Rifle fails to fire when the Trigger is pulled:

1. Wait 15 seconds to allow a possible "hangfire" to go off then...
2. Check to see if the Safety is engaged by mistake. If so, raise and then lower the Bolt Handle to assure the Striker is reset, rotate the Safety to the 3:00 "fire" position, and fire.
3. If the rifle still doesn't fire, be cautious and assume the cartridge will discharge when the bolt is opened and *move from behind the action*. Wait another 15 seconds to allow a possible hangfire to discharge, and open the Bolt smartly and unload the Rifle.
4. Examine the Rifle carefully to identify the cause of the malfunction, and correct it.

MAINTENANCE INSTRUCTIONS

A. Disassembly.

1. Assure that the Rifle is unloaded, and engage the Safety.

Figures 6 and 7
Removing the Bolt Group

2. Remove the Bolt Group. Use a 3/16 inch Allen wrench to loosen, then remove the button headed Bolt Stop Screw at the left rear of the Receiver. Pull the Bolt Group to the rear and out of the Receiver. Further disassembly of the Bolt Group should be done only for repair or lubrication.

Figure 8

Removing the Extractor

3. Removing the Extractor. Use a small diameter pin punch to press the Extractor Plunger to the rear. At the same time, pull the Extractor straight out of the side of the Bolt. It helps to have three small hands or a few extra fingers. **Caution: The Extractor Spring Plunger is under spring pressure. Failure to control the Spring and Plunger may cause injury.**

Figures 9 and 10
Removing the Bolt Sleeve and Striker Group

3. Removing the Bolt Sleeve and Striker Group. With the Safety still engaged, unscrew the Bolt Sleeve and remove the entire group. The Bolt is equipped with ArmaLite's exclusive Floating Bolt Head. It is intentionally designed to flex to assure that all three lugs bear properly against their locking surfaces.

4. Push out the Bolt Retaining Pin to remove the Bolt Head from the Bolt Body. The Bolt Handle may be removed at the same time.

Figure 11, 12 & 13
Removing Bolt Retaining Pin to Remove Bolt Head

Figure 14
Disassembling the Bolt Sleeve and Striker Group

6. Disassembling the Bolt Sleeve and Striker Group. This is tricky and should not be done unless replacing a part, like a broken striker.

Use a 4 x 4 inch piece of wood with a ¼ inch diameter hole through the center as a tool. Push the Striker tip (commonly called the firing pin) into the hole until the Striker Spring starts to compress. This will allow the Safety to be rotated to about the 12:00 position on the Sleeve, exposing the Safety Pin. Push the Safety Pin out while carefully controlling the Sleeve to prevent it, the Safety, and the Spring from flying apart. Carefully ease the pressure on the Sleeve to allow the Spring to expand under firm control. Once the Spring is released, the Striker Pin can be drifted out to replace the Striker. **Caution: The entire Bolt Sleeve and Striker Group are under spring pressure. Failure to control the parts may result in injury. It should very seldom be necessary to disassemble these parts.**

6. Removing the Action Assembly.

Remove the telescopic sight and the Cheekpiece.

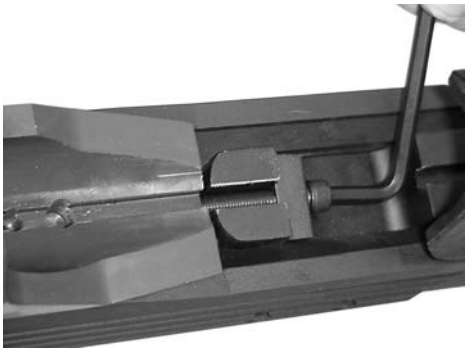


Figure 15
Loosening the Bedding Wedge

Loosen the Bedding Wedge at the front of the Action by loosening the Button Headed Wedge Screw under the action using a 3/16 inch Allen wrench.

Figure 16
Removing the Grip Frame

Place the rifle upside down. Remove the Grip Frame by removing the Grip Frame Screw, using a 3/16 inch Allen screw. Pull the Grip Frame from the Forestock.

Remove the two Action Screws from the bottom of the Forestock using a ¼ inch Allen wrench. Lift the Stock Assembly straight off the Action.

Figures 17 and 18
Removing the Buttstock

5. Removing the Buttstock from the Forestock. Remove the 2 or 3 Buttstock Screws at the right rear of the Forestock using a 5/32 inch Allen wrench. Pull the Buttstock down and to the rear to remove it.

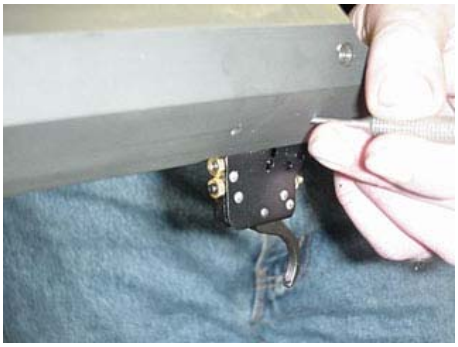


Figure 19 & 20
Removing the Trigger Group

8. Removing the Trigger Group. Drift the two Trigger Group Pins out of the receiver to remove the Trigger Group. The Trigger Group is not user-serviceable.

9. Removing the Muzzle Brake. The Muzzle Brake is held in place by its Lock Ring and Loc Tite. It is not intended to be readily removable.

B. Reassembly. Reverse the steps above. Tighten the Action Screws very lightly. Tighten the Draw Bolt at the front of the Action by tightening the front screw before final tightening the other two Action Screws. This assures that the Recoil Lug is seated properly.

C. Cleaning.

Improper cleaning ruins more firearms than shooting does. The AR-50 will provide years of use with minimal cleaning and preservation.

Wipe the rifle free of dust with a dry rag. Further clean the surface with a rag bearing a small amount of solvent. Pay particular care to the interior of the Action. It should seldom be necessary to remove the Bolt for cleaning.

Use a pull-through device to clean the bore. Use a .50 caliber bore brush soaked with a good bore solvent. Pull it from the breech to the muzzle several times.

Pull a closely fitting patch soaked with solvent through the bore from the breech to the muzzle. Follow the solvent maker's instructions regarding soaking or waiting times. *Make sure that the patch is small enough to avoid being caught in the Muzzle Brake.* Pull dry patches through the bore in a similar manner to remove the solvent and dirt from the bore. Preserve the bore with a generous oiling. Apply the oil by pulling an oily patch trough the bore from breech to front.

Oil or lightly grease the narrow track under the Cheekpiece at the top of the Buttstock. The Sear surface of the Striker runs through this track and serves as a rear bolt guide. A "Q-Tip" or other such device will suffice.

Heat treat processes may produce dark areas of phosphate at the breech ring and bolt cam. This is normal.

D. Preservation. Wipe the entire rifle with a slightly oily rag. Make sure that the bore is well oiled. Store in a container that contains no foam. (Foam absorbs moist air. Heating the container may drive moisture from the foam. It can then condense on a cool rifle.) Use a desiccant or Vapor Phase Inhibitor in the container to help prevent rust.

V. INSTALLATION OF ACCESSORIES

A. Telescopic Sight Base

Two optional scope bases are available from ArmaLite. Each is specially made with special recoil lugs designed to defeat both lateral and longitudinal recoil forces and to engage the scope mounting holes on the receiver. One provides 15 minutes of elevation to an attached scope mount for use at ranges out to 1000 yards. The other provides 50 minutes of elevation to allow shooting at ranges up to 1500 yards. Each is designed to accept ArmaLite's scope mounts, as well as most other Weaver type rings.

Both bases are supplied with four Allen screws for attachment to the base. Because of the angle of the base, at least three of the screws must be shortened so that they don't protrude into the bolt track of the receiver. To install the bases:

Figure 21
The Scope Base

1. Remove the bolt group as instructed above.
2. Set the scope base on the receiver, with the recoil lugs of the base engaging the slots of the receiver. The high end of the base must be to the rear.
3. Insert the rear screw and tighten it. Feel inside the receiver to determine if the screw passes all the way through the receiver roof. If it does, shorten the screw until it won't protrude.
4. Repeat the process with the other screws.
5. You may apply Loctite or another thread cement to the screw threads if you wish. It is not necessary.

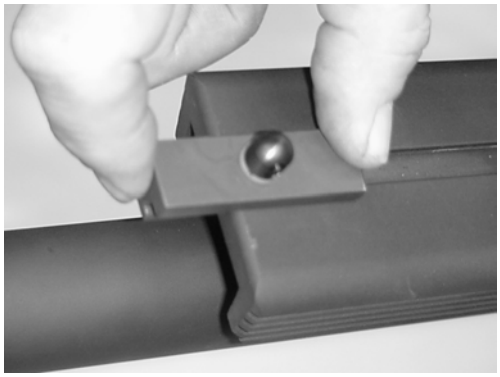
Figure 22
Attaching the ArmaLite Scope Mount

B. Attaching the ArmaLite Scope Mount or Rings: The Scope Mount will accept ArmaLite Mounts or Rings. They are equipped with a positioning cross-rail. Select a location on the Scope Rail, and attach the Scope Mount with the cross-rail engaging a slot in the rail. Tighten the Mount or Rings securely: they are held in place by the grip of the Side Rail.

C. Bipod Adapter

The AR-50 must be fired from a rest or bipod. An optional bipod adapter is available with which to mount Harris or other bipods. To install the bipod adapter:

1. Screw the sling swivel lug into the adapter, stopping with the hole in the lug is at right angles to the adapter.



Figures 23 and 24
Installing the Bipod

2. Insert the small rail of the Adapter into the front of the accessory slot running along the bottom of the Forestock. Slide the Adapter to the desired position.
3. Follow the Harris instructions to attach the Bipod to the Adapter. Tightening the Bipod will secure the Adapter in place on the Forestock. The Bipod may be attached to the Adapter when it is slid into the Stock, as illustrated. The Harris bipod may look weak, but it is actually very strong. You must take care to make sure that you don't let the legs collapse as you pivot the rifle around. We recommend installing the bipod so that the folded legs point forward. When shooting, lean forward into the bipod slightly.

VI. AMMUNITION

Use only clean, high quality ammunition, in good condition. All U.S. military ammunition and commercial equivalents are acceptable.

Ammunition employing sabots cannot be fired in the AR-50. The sabot can cause damage to the muzzle brake.

VII. SUGGESTIONS

ArmaLite appreciates recommendations for changes or improvements to this operator's manual. Please mail or fax your suggestions to ArmaLite at the address on the cover.